Plant Molecular Biology

Contents of Volume 14, 1990

Vol. 14, No. 1, January 1990

L. Montoliu, J. Rigau and P. Puigdomènech: A tandem of α-tubulin genes preferentially expressed in radicular tissues from *Zea mays* 1

R.A. Wing, J. Yamaguchi, S.K. Larabell, V.M. Ursin and S. McCormick: Molecular and genetic characterization of two pollen-expressed genes that have sequence similarity to pectate lyases of the plant pathogen *Erwinia* 17

K. Yamaguchi-Shinozaki, J. Mundy and N.-H. Chua: Four tightly linked *rab* genes are differentially expressed in rice 29

D.J. Leisy, J. Hnilo, Y. Zhao and T.W. Okita: Expression of a rice glutelin promoter in transgenic tobacco 41

H.D. Bradshaw, Jr., J.B. Hollick, T.J. Parsons, H.R.G. Clarke and M.P. Gordon: Systemically wound-responsive genes in poplar trees encode proteins similar to sweet potato sporamins and legume Kunitz trypsin inhibitors 51

B.-J. Janssen and R.C. Gardner: Localized transient expression of GUS in leaf discs following cocultivation with *Agrobacterium* 61

T.H.N. Ellis, M. Delseny, D. Lee and K.W.G. Burcham: Methylated and undermethylated rDNA repeats are interspersed at random in two higher plant species 73

J.M. Vrba and S.E. Curtis: Characterization of a four-member *psb*A gene family from the cyanobacterium *Anabaena* PCC 7120 81

W.J. Broothaerts, A. van Laere, R. Witters, G. Préaux, B. Decock, J. van Damme and J.C. Vendrig: Purification and N-terminal sequencing of style glycoproteins associated with self-incompatibility in *Petunia hybrida* 93

Plant Molecular Biology Update Section

H.J. Franssen, D.V. Thompson, K. Idler, R. Kormelink, A. van Kammen and T. Bisseling: Nucleotide sequence of two soybean ENOD2 early nodulin genes encoding Ngm-75 103

T. Liboz, C. Bardet, A. Le van Thai, M. Axelos and B. Lescure: The four members of the gene family encoding the *Arabidopsis thaliana* translation elongation factor *EF-1*α are actively transcribed 107

Vol. 14, No. 2, February 1990

E.E. Hood, D.H. Clapham, I. Ekberg and T. Johannson: T-DNA presence and opine production in tumors of *Picea abies* (L.) Karst induced by *Agrobacterium tumefaciens* A281 111

J. Memelink, H.J.M. Linthorst, R.A. Schilperoort and J.H.C. Hoge: Tobacco genes encoding acidic and basic isoforms of pathogenesis-related proteins display different expression patterns 119

A.S.N. Reddy and B.W. Poovaiah: Molecular cloning and sequencing of a cDNA for an auxin-repressed mRNA: correlation between fruit growth and repression of the auxin-regulated gene 127

R.B. Turley and R.N. Trelease: Development and regulation of three glyoxysomal enzymes during cotton seed maturation and growth 137

V.O. Kolosha and I. Fodor: Nucleotide sequence of *Citrus limon* 26S rRNA gene and secondary structure model of its RNA 147

D. McElroy, M. Rothenberg and R. Wu: Structural characterization of a rice actin gene 163

B. Huss, B. Tinland, F. Paulus, B. Walter and L. Otten: Functional analysis of a complex oncogene arrangement in biotype III *Agrobacterium tumefaciens* strains 173
J.A. Waddle, A.M. Schuster, K.W. Lee and R.H. Meints: The mitochondrial genome of an exsymbiotic *Chlorella*-like green alga 187
Z. Svab, E.C. Harper, J.D.G. Jones and P. Maliga: Aminoglycoside-3″-adenyltransferase confers resistance to spectinomycin and streptomycin in *Nicotiana tabacum* 197
J.C. Fearn and T.A. LaRue: An altered constitutive peptide in *sym* 5 mutants of *Pisum sativum* L. 207
K. Ko, A. Granell, J. Bennett and A.R. Cashmore: Isolation and characterization of cDNAs from *Lycopersicon esculentum* and *Arabidopsis thaliana* encoding the 33 kDa protein of the photosystem II-associated oxygen-evolving complex 217
D.I. Last and J.C. Gray: Synthesis and accumulation of pea plastocyanin in transgenic tobacco plants 229
M. Köster-Töpfer, W.B. Frommer, M. Rocha-Sosa and L. Willmitzer: Presence of a transposon-like element in the promoter region of an inactive patatin gene in *Solanum tuberosum* L. 239
L.S. Melchers, M.J. Maroney, A. den Dulk-Ras, D.V. Thompson, H.A.J. van Vuuren, R.A. Schilperoort and P.J.J. Hooykaas: Octopine and nopaline strains of *Agrobacterium tumefaciens* differ in virulence; molecular characterization of the *virF* locus 249
D.T. Tomes, A.K. Weissinger, M. Ross, R. Higgins, B.J. Drummond, S. Schaaf, J. Malone-Schoneberg, M. Staebell, P. Flynn, J. Anderson and J. Howard: Transgenic tobacco plants and their progeny derived by microprojectile bombardment of tobacco leaves 261
K.E. McBride and K.R. Summerfelt: Improved binary vectors for *Agrobacterium*-mediated plant transformation 269

Plant Molecular Biology Update Section

R.P. Wise, W. Rohde and F. Salamini: Nucleotide sequence of the *Bronze-1* homologous gene from *Hordeum vulgare* 277
K.W. Hutchison, P.D. Harvie, P.B. Singer, A.F. Brunner and M.S. Greenwood: Nucleotide sequence of the small subunit of ribulose-1,5-bisphosphate carboxylase from the conifer *Larix laricina* 281
K. Datta and A. Marcus: Nucleotide sequence of a gene encoding soybean repetitive proline-rich protein 3 285

Vol. 14, No. 3, March 1990

S. Jansson and P. Gustafsson: Type I and Type II genes for the chlorophyll *a/b*-binding protein in the gymnosperm *Pinus sylvestris* (Scots pine): cDNA cloning and sequence analysis 287
J. Freeman, A.J. Márquez, R.M. Wallsgrove, R. Saarelainen and B.G. Forde: Molecular analysis of barley mutants deficient in chloroplast glutamine synthetase 297
M.-F. Gautier, R. Alary and P. Joudrier: Cloning and characterization of a cDNA encoding the wheat *(Triticum durum* Desf.) CM16 protein 313
A.J.M. Matzke, E.M. Stöger, J.P. Schernthaner and M.A. Matzke: Deletion analysis of a zein gene promoter in transgenic tobacco plants 323
E.R. Jupe and E.A. Zimmer: Unmethylated regions in the intergenic spacer of maize and teosinte ribosomal RNA genes 333
R. Johnson, J.S. Lee and C.A. Ryan: Regulation of expression of a wound-inducible tomato inhibitor I gene in transgenic nightshade plants 349
H. Shinshi, J.-M. Neuhaus, J. Ryals and F. Meins, Jr.: Structure of a tobacco endochitinase gene: evidence that different chitinase genes can arise by transposition of sequences encoding a cysteine-rich domain 357
C.J.S. Smith, C.F. Watson, P.C. Morris, C.R. Bird, G.B. Seymour, J.E. Gray, C. Arnold, G.A. Tucker, W. Schuch, S. Harding and D. Grierson: Inheritance and effect on ripening of antisense polygalacturonase genes in transgenic tomatoes 369

S. Kauffmann, M. Legrand and B. Fritig: Isolation and characterization of six pathogenesis-related (PR) proteins of Samsun NN tobacco 381
R. Cooke and P. Penon: *In vitro* transcription from cauliflower mosaic virus promoters by a cell-free extract from tobacco cells 391
M.A. Hughes, A.L. Sharif, M.A. Dunn, E. Oxtoby and A. Pancoro: Restriction fragment length polymorphism segregation analysis of the *Li* locus in *Trifolium repens* L. 407
R. Dudler: The single-copy actin gene of *Phytophthora megasperma* encodes a protein considerably diverged from any other known actin 415
J. Vilardell, A. Goday, M.A. Freire, M. Torrent, M.C. Martínez, J.M. Torné and M. Pagès: Gene sequence, developmental expression, and protein phosphorylation of RAB-17 in maize 423
M. Sanger, S. Dauber and R.M. Goodman: Characteristics of a strong promoter from figwort mosaic virus: comparison with the analogous 35S promoter from cauliflower mosaic virus and the regulated mannopine synthase promoter 433

Plant Molecular Biology Update Section

A.L. Abdel-Mawgood and R.A. Dilley: Cloning and nucleotide sequence of the *psb*H gene from cyanobacterium *Synechocystis* 6803 445
M. Lakshmikumaran and S.A. Ranade: Isolation and characterization of a highly repetitive DNA of *Brassica campestris* 447
A.J. Delauney, C.-I. Cheon, P.J. Snyder and D.P.S. Verma: A nodule-specific sequence encoding a methionine-rich polypeptide, nodulin-21 449
D.B.D. Ha, D. Buffard, F. Berger, C. Bréda and R. Esnault: Nucleotide sequence encoding a slow allele of Adh1 in pearl millet 453

Vol. 14, No. 4, April 1990

A.R. van der Krol, L.A. Mur, P. de Lange, J.N.M. Mol and A.R. Stuitje: Inhibition of flower pigmentation by antisense CHS genes: promoter and minimal sequence requirements for the antisense effect 457
G.B. Kiss, É. Vincze, Z. Végh, G. Tóth and J. Soós: Identification and cDNA cloning of a new nodule-specific gene, Nms-25 (nodulin-25) of *Medicago sativa* 467
A. Lefebvre, R. Scalla and P. Pfeiffer: The double-stranded RNA associated with the '447' cytoplasmic male sterility in *Vicia faba* is packaged together with its replicase in cytoplasmic membranous vesicles 477
O. Vorst, F. van Dam, R. Oosterhoff-Teertstra, S. Smeekens and P. Weisbeek: Tissue-specific expression directed by an *Arabidopsis thaliana* pre-ferredoxin promoter in transgenic tobacco plants 491
J.M. Tepperman and P. Dunsmuir: Transformed plants with elevated levels of chloroplastic SOD are not more resistant to superoxide toxicity 501
L. Pearson and R.B. Meagher: Diverse soybean actin transcripts contain a large intron in the 5′ untranslated leader: structural similarity to vertebrate muscle actin genes 513
R. Johnson and C.A. Ryan: Wound-inducible potato inhibitor II genes: enhancement of expression by sucrose 527
J. de Silva, N.M. Loader, C. Jarman, J.H.C. Windust, S.G. Hughes and R. Safford: The isolation and sequence analysis of two seed-expressed acyl carrier protein genes from *Brassica napus* 537
J.M. Cock, R.M. Mould, M.J. Bennett and J.V. Cullimore: Expression of glutamine synthetase genes in roots and nodules of *Phaseolus vulgaris* following changes in the ammonium supply and infection with various *Rhizobium* mutants 549
E.R. Ward and G.C. Jen: Isolation of single-copy-sequence clones from a yeast artificial chromosome library of randomly-sheared *Arabidopsis thaliana* DNA 561

G.P.M. Longo, M. Bracale, G. Rossi and C.P. Longo: Benzyladenine induces the appearance of LHCP-mRNA and of the relevant protein in dark-grown excised watermelon cotyledons 569
E.H. Gendloff, B. Bowen and W.G. Buchholz: Quantitation of chloramphenicol acetyl transferase in transgenic tobacco plants by ELISA and correlation with gene copy number 575
Jia-ling Lu, J.R. Ertl and Chong-maw Chen: Cytokinin enhancement of the light induction of nitrate reductase transcript levels in etiolated barley leaves 585
T. Hattori, S. Nakagawa and K. Nakamura: High-level expression of tuberous root storage protein genes of sweet potato in stems of plantlets grown *in vitro* on sucrose medium 595
S. Riesselmann and B. Piechulla: Effect of dark phases and temperature on the chlorophyll a/b binding protein mRNA level oscillations in tomato seedlings 605

Plant Molecular Biology Update Section

D. Bouchez and C. Camilleri: Identification of a putative *rol* B gene on the TR-DNA of the *Agrobacterium rhizogenes* A4 Ri plasmid 617
K.S. Reece, D. McElroy and R. Wu: Genomic nucleotide sequence of four rice (*Oryza sativa*) actin genes 621
C.J. Meduski and J. Velten: PSTV sequence similarity to large rRNA 625
C.D. Riggs and M.J. Chrispeels: The expression of phytohemagglutinin genes in *Phaseolus vulgaris* is associated with organ-specific DNA methylation patterns 629
C.L. Baszczynski and L. Fallis: Isolation and nucleotide sequence of a genomic clone encoding a new *Brassica napus* napin gene 633
D.A. Wakarchuk and R.I. Hamilton: Partial nucleotide sequence from enigmatic dsRNAs in *Phaseolus vulgaris* 637

Erratum

L.S. Robert, P.A. Donaldson, C. Ladaique, I. Altosaar, P.G. Arnison and S.F. Fabijanski: Antisense RNA inhibition of β-glucuronidase gene expression in transgenic tobacco plants 641

Vol. 14, No. 5, May 1990

A.S.N. Reddy, P.K. Jena, S.K. Mukherjee and B.W. Poovaiah: Molecular cloning of cDNAs for auxin-induced mRNAs and developmental expression of the auxin-inducible genes 643
Ning Huang, T.D. Sutliff, J.C. Litts and R.L. Rodriguez: Classification and characterization of the rice α-amylase multigene family 655
P. Hilson, J. Dewulf, F. Delporte, P. Installé, J.-M. Jacquemin, M. Jacobs and I. Negrutiu: Yeast *RAS2* affects cell viability, mitotic division and transient gene expression in *Nicotiana* species 669
G.B. Gharti-Chhetri, W. Cherdshewasart, J. Dewulf, J. Paszkowski, M. Jacobs and I. Negrutiu: Hybrid genes in the analysis of transformation conditions. 3. Temporal/spatial fate of NPTII gene integration, its inheritance and factors affecting these processes in *Nicotiana plumbaginifolia* 687
G.R. Schmetterer: Sequence conservation among the glucose transporter from the cyanobacterium *Synechocystis* sp. PCC 6803 and mammalian glucose transporters 697
J.L.S. Cotton, C.W. Ross, D.H. Byrne and J.T. Colbert: Down-regulation of phytochrome mRNA abundance by red light and benzyladenine in etiolated cucumber cotyledons 707
P.H. Morgens, A.M. Callahan, L.J. Dunn and F.B. Abeles: Isolation and sequencing of cDNA clones encoding ethylene-induced putative peroxidases from cucumber cotyledons 715
G.J. Goodall and W. Filipowicz: The minimum functional length of pre-mRNA introns in monocots and dicots 727
C.H. Hänisch ten Cate, A.E.H.M. Loonen, M.P. Ottaviani, L. Ennik, G. van Eldik and W.J. Stiekema: Frequent spontaneous deletions of Ri T-DNA in *Agrobacterium rhizogenes* transformed potato roots and regenerated plants 735

A. Leite, L.M.M. Ottoboni, M.L.P.N. Targon, M.J. Silva, S.R. Turcinelli and P. Arruda: Phylogenetic relationship of zeins and coixins as determined by immunological cross-reactivity and Southern blot analysis 743

S. Yalovsky, G. Schuster and R. Nechushtai: The apoprotein precursor of the major light-harvesting complex of photosystem II (LHCIIb) is inserted primarily into stromal lamellae and subsequently migrates to the grana 753

M.E. Williams, J. Mundy, S.A. Kay and Nam-Hai Chua: Differential expression of two related organ-specific genes in pea 765

D.P. Matton, P. Constabel and N. Brisson: Alcohol dehydrogenase gene expression in potato following elicitor and stress treatment 775

Xiangcan Zhan, D.A. Jones and A. Kerr: The pTiC58 *tzs* gene promotes high-efficiency root induction by agropine strain 1855 of *Agrobacterium rhizogenes* 785

S.R. Turner, D.H.P. Barratt and R. Casey: The effect of different alleles at the *r* locus on the synthesis of seed storage proteins in *Pisum sativum* 793

H. Pfitzinger, J.H. Weil, D.T.N. Pillay and P. Guillemaut: Codon recognition mechanisms in plant chloroplasts 805

P.R. Ebert and A.E. Clarke: Transformation and regeneration of the self-incompatible species *Nicotiana alata* Link & Otto 815

G. Siemeister and W. Hachtel: Structure and expression of a gene encoding the large subunit of ribulose-1,5-bisphosphate carboxylase (*rbc*L) in the colourless euglenoid flagellate *Astasia longa* 825

A.D. Hudson, R. Carpenter and E.S. Coen: Phenotypic effects of short-range and aberrant transposition in *Antirrhinum majus* 835

F. García-Maroto, C. Maraña, M. Mena, F. García-Olmedo and P. Carbonero: Cloning of cDNA and chromosomal location of genes encoding the three types of subunits of the wheat tetrameric inhibitor of insect α-amylase 845

Plant Molecular Biology Update Section

D.J. Wolyn and G. Jelenkovic: Nucleotide sequence of an alcohol dehydrogenase gene in octoploid strawberry (*Fragaria* × *Ananassa* Duch.) 855

A.M. Schuster, J.A. Waddle, K. Korth and R.H. Meints: The chloroplast genome of an exsymbiotic *Chlorella*-like green alga 859

D.P. Matton, B. Bell and N. Brisson: Nucleotide sequence of a pathogenesis-related gene of potato 863

F. García-Maroto, C. Maraña, F. García-Olmedo and P. Carbonero: Nucleotide sequence of a cDNA encoding an α/β-type gliadin from hexaploid wheat (*Triticum aestivum*) 867

A. Tahiri-Alaoui, E. Dumas and S. Gianinazzi: Detection of PR-b proteins in tobacco roots infected with *Chalara elegans* 869

P. Roy and N. Sahasradbudhe: A sensitive and simple paper chromatographic procedure for detecting neomycin phosphotransferase II (NPTII) gene expression 873

J. Kreike: Genetic analysis of forest tree populations: isolation of DNA from spruce and fir apices 877

W.Y. Cheung and M.D. Gale: The isolation of high molecular weight DNA from wheat, barley and rye for analysis by pulse-field gel electrophoresis 881

T. Merkle, M. Krenz, A. Wenng and E. Schäfer: Nucleotide sequence and deduced amino acid sequence of a gene encoding the 23 kDa polypeptide of the oxygen-evolving complex from mustard (*Sinapis alba* L.) 889

Vol. 14, No. 6, June 1990

D. Infante H. and A. Weissbach: Organellar DNA replication in *Nicotiana tabacum* cultured cells 891

G.W. Bates, S.A. Carle and W.C. Piastuch: Linear DNA introduced into carrot protoplasts by electroporation undergoes ligation and recircularization 899

B.W. Shirley, D.P. Ham, J.F. Senecoff, S.L. Berry-Lowe, L.L. Zurfluh, D.M. Shah and R.B. Meagher: Comparison of the expression of two highly homologous members of the soybean ribulose-1,5-bisphosphate carboxylase small subunit gene family 909

R.J. Kelly, R.D. Johnson and A. Siegel: Heterogeneity and organization of the ribosomal RNA genes of *Cucurbita maxima* 927

M. Schneider, D.W. Ow and S.H. Howell: The *in vivo* pattern of firefly luciferase expression in transgenic plants 935

W.M. Ainley and J.L. Key: Development of a heat shock inducible expression cassette for plants: characterization of parameters for its use in transient expression assays 949

H. Pfitzinger, L. Maréchal-Drouard, D.T.N. Pillay, J.H. Weil and P. Guillemaut: Variations during leaf development of the relative amounts of two bean (*Phaseolus vulgaris*) chloroplast $tRNAs^{Phe}$ which differ in their minor nucleotide content 969

J. Wehlan, C. Knorpp and E. Glaser: Sorting of precursor proteins between isolated spinach leaf mitochondria and chloroplasts 977

A. Kato, T. Nakajima, J. Yamashita, K. Yakura and S. Tanifuji: The structure of the large spacer region of the rDNA in *Vicia faba* and *Pisum sativum* 983

R. Jefferson, A. Goldsbrough and M. Bevan: Transcriptional regulation of a patatin-1 gene in potato 995

J.G. Mason and P.R. Whitfeld: The γ-subunit of spinach chloroplast ATP synthase: isolation and characterisation of cDNA and genomic clones 1007

C. Gietl, M. Lehnerer and O. Olsen: Mitochondrial malate dehydrogenase from watermelon: sequence of cDNA clones and primary structure of the higher-plant precursor protein 1019

H. Hartings, N. Lazzaroni, P.A. Marsan, A. Aragay, R. Thompson, F. Salamini, N. Di Fonzo, J. Palau and M. Motto: The b-32 protein from maize endosperm: characterization of genomic sequences encoding two alternative central domains 1031

Plant Molecular Biology Update Section

J. Kim and R.N. Nazar: Structure and evolution of the 4.5-5S rRNA intergenic region in rDNA from rapeseed (*Brassica napus*) chloroplasts 1041

D. Klämbt: A view about the function of auxin-binding proteins at plasma membranes 1045

F. Nilsson, B. Andersson and C. Jansson: Photosystem II charateristics of a constructed *Synechocystis* 6803 mutant lacking synthesis of the D1 polypeptide 1051

R. Perrey, M. Schneider and M. Wink: Tissue-specific expression of a cDNA clone from cell suspension cultures of *Lupinus polyphyllus* 1055

W. Rohde, K. Rosch, K. Kröger and F. Salamini: Nucleotide sequence of a *Hordeum vulgare* gene encoding a glycine-rich protein with homology to vertebrate cytokeratins 1057

B. Epping, M. Kittel, B. Ruhnau and V. Hemleben: Isolation and sequence analysis of a chalcone synthase cDNA of *Matthiola incana* R. Br. (Brassicaceae) 1061

H. Puchta, R. Luckinger, X. Yang, A. Hadidi and H.L. Sänger: Nucleotide sequence and secondary structure of apple scar skin viroid (ASSVd) from China 1065